THE VETERINARY RECORD

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NATIONAL VETERINARY ASSOCIATION.

The arrangements for the annual meeting in Edinburgh are now approaching completion, and a provisional outline of the proceedings may be given. The meeting opens at 10 a.m. on Tuesday, July 30th. The morning sitting will be devoted to a paper "On the Diseases of Young Stock," by Mr. J. Clarke, of Coupar Angus, the discussion on which will be opened by Mr. Thompson, of Aspatria. In the afternoon Mr. Riddoch's paper on "Dairy Inspection" will be discussed, the lead being taken by Mr. J. S. Lloyd, of Sheffield.

In the evening the annual dinner will be held. The ladies will be taken care of on the afternoon of the first day by one of the resident practitioners who, we understand, intends offering them a garden party.

Wednesday, July 31st, will be a full day. In the morning Mr. McPhail's paper on "Meat Inspection" will be discussed on the opening of Mr. J. King, of London. In the afternoon Mr. R. Bryden's paper on "Veterinary Inspection at Horse and Cattle Shows" will be opened by Mr. W. Logan, of Inverness, and the discussion follow. In the evening some social function will be held.

Thursday, August 1st, will probably be devoted to an excursion offered the members by the Scottish veterinarians.

The rest of the week is unprovided for at present, and the General Secretary would be glad of any suggestions for visiting the Glasgow Exhibition or the Lakes. Messrs. Cook and Son, who last year so successfully arranged our Killarney trip would be glad to take us in hand this year in Scotland.

FOOT-AND-MOUTH DISEASE.

We hope and believe that the protracted invasion of the disease is now over. It has given rise to some anxiety. When a number of outbreaks occur at distant places, some with long intervals between them, and when the origin of all is doubtful, it may be surmised that more than one outbreak has existed and never been reported. The authorities at first adopted slaughter of all infected and of those in-contact. That was bold and expedient. The later outbreaks have been treated by isolation with restrictions on movement in the district. Not unnaturally some adverse criticism has arisen from those interested, but we think the Board has acted wisely. When foot-and-mouth disease has spread to any extent slaughter is an expensive method of control, and uncertain. Isolation and restriction on movement when properly carried out is effective and economical, as the disease is seldom fatal or prolonged.

SWINE FEVER.

This disease is increasing, and every one except the directing powers of the Board of Agriculture knows why. About three-quarters of a million sterling has been wasted by the Board on half-measures, They were warned of this years ago by the veterinary profession and contemptuously ignored the warnings. Stock-owners are now getting restless. They tolerated restrictions when compensation was fairly paid. They have good grounds now to complain that, whilst the disease is unchecked, they are being unjustly coerced. This cannot continue.

THE SPECIAL GENERAL MEETING.

Although no official intimation has yet reached us we believe that the requisition has been accepted, and that the meeting will be called for a date towards the end of this month.

OBSERVATIONS ON THE RELATIONSHIP OF RADIAL PARALYSIS AND FRACTURE OF THE FIRST RIB.

That the paralysis may arise apart from this fracture must be allowed, inasmuch as such violence as would occasion fracture may, applied in a lesser degree, so damage the radial nerve in its passage over the rib or elsewhere, as to give rise to the characteristic symptoms. That this is so is to be established only by careful post-mortem examinations.

So far as I have had opportunities of observing the majority of these cases are without a doubt associated with fracture of the first rib at about the junction of the middle and upper thirds. Several post-mortem examinations made shortly after the onset of lameness have demonstrated this.

By far the greater numberof these cases recover and resume work, and the opportunity for post-mortem examination may be long deferred, and the longer the period elapsing between the lameness and the post-mortem examination the more difficult it becomes to determine whether or no fracture and the lameness were co existent.

I have made several post-mortem examinations long after the subjects of this condition had recovered, and in no case have I found under such circumstances a normal condition of the first rib. I have on the other hand invariably found two of the commonest after effects of fracture, viz.: 1st, enlargement (thickening) of the bone; and 2nd, deformity.

Three post-mortem examinations made quite recently on horses that had previously come under my notice for well-marked "dropped elbow"—radial paralysis—tempt me to again draw the attention of your readers to this matter. I am forwarding the first pair of ribs from each of these horses for use in illustrating this communication and a brief history of each case.

Illustration No. I. represents the first pair of ribs of a black mare six years old at time of her death from one of the commonly fatal abdominal troubles. Eight or nine months prior to her death she had radial paralysis and was unfit for work over a period of 10 weeks. At the end of this period she resumed work moving soundly, but with distinct wasting of the triceps. She continued in work and sound till her fatal illness, and the loss of muscle noted at the time she resumed work had been made up again.

Illustration No. II. represents the first pair of ribs of a brown mare about 15 years old, destroyed in consequence of fractured pastern. Seven years previously I had her under observation for radial paralysis—a very marked case. After being off work just over two months she resumed duty, moving sound but with some wasting of the triceps.

Illustration No. III. represents the first pair of ribs of a brown horse, 16 or 17 years old, when slaughtered as "worn out." Seven years previously he also had radial paralysis well marked in one leg like the two cases recorded above. He ran a similar course to No. II, and resumed work at the end of about 9 weeks with usual loss of substance of triceps. Shortly (14 or 15 days) after resuming work he came again under notice for an identical lameness in the opposite limb, and after a somewhat similar period of inability he resumed duty and continued regularly at work till "worn out."

The illustrations show clearly the marked physical changes in the bones concerned. In *No. I*, besides the obvious evidences of fracture, it will be noted that the whole length of the bone is thickened. This is very clear on comparing it with its fellow rib—a normal one.

No. II exhibits one rib with marked thickening of the bone, obliteration of the neck and deformity, besides a number of ragged bony excrescences.

No. III. exhibits the thickening and obliteration of the neck of both bones together with deformity—very marked in one bone—and the excrescences.

The history of all these cases that have come under my notice is pretty uniform. We have a high-couraged and irritable worker, some plunging in harness, sudden marked lameness. Five or six weeks of dropped elbow, then—after the limb has recovered somewhat of its normal relation to the body—a few weeks of lameness which passes off gradually, some atrophy of the triceps, which also, like the lameness, disappears gradually.

A modest proportion of these cases behave as did No. III., viz., after resumption of work for a variably short period they exhibit an identical lameness in the opposite limb.

Bearing on this phenomenon is a further Illustration (No. IV.) representing the 1st pair of ribs of a chestnut mare, that first came under my observation early in '93 for Radial Paralysis of one leg. The case ran a regular course and she resumed work for about a week and then had an identical lameness in the opposite limb, she was destroyed three years later. The likeness of these ribs to the pair shown in Illustration No. III—associated with a similar history—is sufficiently obvious.

For such of your readers as take care of their *Records* and are interested sufficiently in this subject, a reference to an illustration in the number for February 12th, 1898, should prove instructive. This case worked two years between the two terms of lameness, but such a long interval is unusual. There was at time of slaughter of this horse a well united fracture on the side first affected and a comparatively recent one on the opposite side. This is made very clear by the illustration.

I remember well two horses affected with this malady that would not answer my description of high-couraged, hasty working, etc., and it is interesting to note how they came by their trouble. One was a steady working young mare, but very nervous. She baulked at an engine passing over a bridge immediately in front of her. She first dropped back and then plunged into her collar and was immediately very lame. She was lame for several months, and was disposed of by sale. The other was an aged harness horse that had been repeatedly thrashed for shying. After stopping short at some paper blowing about on the roadway, he plunged forward — anticipating punishment, and like the last animal became at once very lame. I destroyed him 10 or 12 days after onset of lameness and found complete fracture of the rib.

London. W. Willis, M.R.C.V.S.

SEBACEOUS CYST IN FALSE NOSTRIL.

The case came under my care some years ago in India. The subject was a well-bred Australian gelding that I was asked to examine as the owner, in whose possession he had been some time, said he was turning a roarer. When galloped the horse made a most peculiar snoring sound as soon as ever he started, which continued a short time after he was pulled up. It could be easily determined that the noise came from the left side only, and the muscles were more active than on the right side of the face. A yielding but *not* fluctuating swelling about the size of a pigeon's egg could plainly be seen in the left false nostril. The swelling was punctured with an exploring needle, and exit given to a viscid glairy material, somewhat dark in colour with granules floating about in it.

The patient was thrown in the usual manner, chloroform administered, a longitudinal incision made into the swelling which gave exit to a considerable amount of the glairy fluid, and the walls of the cyst which were thick dissected out. The part was treated as an ordinary wound and healed without trouble. The further history of the case is uneventful, but eighteen months afterwards there was no recurrence of the growth, and only a thin white cicatrix over the site of the operation wound.

Sebaceous cysts in the false nostril are mentioned in Cadiot and Dollar's "Clinical Veterinary Medicine and Surgery," p. 316, and perusal of these cases has induced me to publish this one.

Joshua A. Nunn, Vet.-Lt.-Col., A.V.D.

2nd May, 1901.

HYDROPS PERICARDI, WITH COMPLICATIONS.

On the 25th of March last my assistant saw a three-year-old cow in milk showing the following symptoms: pulse 80 and weak, respiration 29, temperature 105·3° F., appetite in abeyance, occasional cough, grinding of the teeth and moaning. On auscultation of the chest friction sounds on both sides were detected.

26th.—Patient brighter, had eaten a little hay and bran and oats, breathing not so laboured, temp. 103·2° F., but the pulse very weak and extremely

I

III.

II

IV.

To illustrate Mr. Willis' notes on Fractured First Ribs.

small in volume. The pleuritic sounds not so loud, and evident signs of effusion.

Percussion over the heart region indicated a larger area of dullness than normal. This area extended anteriorly as far as the shoulder muscles will allow when the limb is pulled forward; posteriorly, so far as I could judge, to the 8th or 9th rib. Auscultation revealed a very indistinct heart sound and a faint splashing synchronous with the cardiac impulse.

27th.—I had a message to say the cow's chest had become swollen at the shoulders. This I found to be a mistake, the swelling was more apparent than real and was due to the fact that when standing the cow abducted her fore legs to such an extent as to make the shoulders and fore part of the chest look enlarged. This condition was aggravated by the fact that the patient was very fat. There was, however, a very pronounced œdema of the sub-maxillary space which assisted us to offer a still more decided diagnosis.

28th.—Patient much worse, breathing more laboured, respiration pronouncedly abdominal, and at times oral. The cardiac area much increased, especially posteriorly. I may here mention I outlined what appeared, on our first examination, the space occupied by the heart by clipping the hair round the space. The pulse was very weak and at times irregular. The animal being in good condition she was ordered to be destroyed.

Autopsy.—The carcase when dressed set well and looked healthy, the abdominal viscera healthy, the pleural cavity contained about 25 ounces of fluid. The parietal pleura was only slightly inflamed, while the visceral was more extensively affected. The pericardium occupied a considerable part of the thorax and with its contents weighed 27½ lbs. When tapped about three litres of sour sanguineous fluid escaped. On cutting through the pericardium, which was considerably thickened, the cavity that had recently contained the fluid presented a beautiful appearance. That which constituted the wall of this serous cavity was completely studded by projections of flocculent lymph which looked almost crystalline in appearance. After weighing the organ it was measured carefully. The circumference of the heart sac as it was removed from the chest was 32 by 28 inches. The pericardium and heart was then divided equally in two and a line was drawn from the base of the organ to the apex at their widest parts measured 15 inches, while crosswise 11½ inches. Similarly from base to apex of the heart itself the distance was 5¼ inches, and from side to side 3¾ inches.

Remarks.—This case could give rise to many interesting questions, a goodly few of which I regret I cannot answer. For example, whether did the pleuritic or pericardial membranes become first attacked? Personally I should say the latter, judging from the tenacity of the fibrin in each case. Then, again, the heart itself had quite a shrunken and compressed appearance. What was the cause of the condition? It was not traumatic, then was it idiopathic or rheumatic? The animal, I believe, had no previous illness and she came from a healthy strain. The weak and small pulse, as well as the distinctly obscure heart beats indicated a compressed heart, but I may add before I diagnosed the cardiac splashing I suspected hypertrophy, considering the increased area of dullness. It is also interesting to note that if tapping had been tried in this case it is just possible that the trochar would have penetrated the pericardium at a point away from the cavity containing the fluid. This might have put one somewhat off his guard.

W. M. Scott, F.R.C.V.S.

Bridgwater.

ABSTRACTS FROM FOREIGN JOURNALS.

Impassableness of the Canal of the Teat and its Treatment.—By M. Strebel, of Freiburg.

The non-success of operative measures in diseases of the teat recorded by Bracker and Giovanoli induces Strebel to record his experiences. The author says rightly that importance enough is not attached to this matter in text books.

On reading the operations described therein one would imagine that they were very easily performed and of quite a harmless nature. This is, in the majority of cases, not so. The operations always cause a more or less considerable injury to the mucous membrane of the teat, and this forms a favourable seat of infection. Such infections have very bad results, *e.g.*, inflammation of the teat and of the udder, suppuration, and gangrene of the same. Obliterations of the canal of the teat are partly acquired and partly hereditary.

Prognosis depends on the situation and extent of the disease. Congenital obliterations may be limited to the mouth of the lactiferous duct or affect the whole canal. The former affection can easily be remedied and without danger by the introduction of a suitable instrument. The dangers to be apprehended are injury to the terminal portion of the teat or papillous growths arising round the mouth of the passage and causing narrowing or closure of the canal.

In order to hinder adhesion and closures again taking place Strebel relies on bougies dipped in glycerine. The cutting away of the point of the teat as recommended by Hoffman, Strebel considers of no advantage for it is only by suppuration from above that the growing together again takes place. By amputation of the obliterated portion of teat the contained pus escapes and a quick relief of pain and relatively a considerably quicker remedying of the complaint is brought about.

If the congenital atresia affects the whole or almost the whole of the canal of the teat treatment is of no avail.

Inflammatory swellings of the teat causing stenosis Strebel treats with a mixture of glycerine and tincture of iodine.

Stenoses depending on thickening of the mucous membrane of the teat and its epithelium are noticed, on rolling the teat between the fingers, as hard cord-like formations as thick as a hen's and goose's feather. (Results of a catarrhal mastitis). In such cases one should avoid any operative interference, as unpleasant consequences often result from such procedure (*e.g.* gangrene of the udder.)

The most usual causes of stenosis and obliteration of the course of the canal are fibrous new growths and, less seldom, papillous excrescences on the mucous membrane.

The fibromas are generally situated in the lower third of the teat and are generally encountered as roundish, firm, insensitive bodies.

Here Strebel recommends the operation with a suitable teat cleanser. Many a time the canal of the teat becomes obliterated by various disc-shaped, thick membranes; these may be broken down with a sound and a teat cleanser. Frequently the retention of a teat syphon for some days is advisable.

It is very important that teat syphons and teat-cleansers should be disinfected by boiling.

Strebel comes to the conclusion that extensive stenoses affecting the lower third of the teat are seldom successfully treated, and operating should be avoided in these cases and the quarter allowed to dry.—*Nevermann.*

G. M.

ELECTION ADDRESSES.

To the Members and Fellows of The Royal College of Veterinary Surgeons.

Gentlemen,

Having been duly nominated as a candidate for election to the Council of the Royal College of Veterinary Surgeons, I take this opportunity to declare my attitude on current matters of professional politics and to solicit the favour of your vote.

I am of opinion there should be no retrogression as far as the matriculation examination is concerned, that there should be a uniform minimum standard for all the schools, and that before a student receives his diploma he should give evidence of having had at least one year's experience in country practice.

I consider that our Charters, Acts, and Bye-laws, especially those clauses appertaining to the Registration Committee, should be faithfully and strictly carried out in a business-like manner and without either fear or favour.

I strongly approve our Council doing its utmost to get the Army Veterinary Department placed on a similar basis to that of the Army Medical Service. Also that the Remount Department should be under the control of a competent veterinary officer.

I feel that the time has now come that no man should act either as meat. cowshed, or slaughter-house inspector unless he is a duly qualified veterinary surgeon.

I strongly condemn the action of the Board of Agriculture in allowing its laymen to usurp the function of the veterinary surgeon.

An attempt should now be made to obtain for practising veterinary surgeons exemption from juries.

I think our Council should consider the action of those "veterinary" lecturers who attempt to teach the public to do without the veterinary surgeon.—Yours faithfully,

HENRY GRAY.

To the Members and Fellows of The Royal College of Veterinary Surgeons.

Gentlemen,

I have again had the honour to be nominated by the Yorkshire Veterinary Medical Association as a candidate for the forthcoming election of Council. I have always had the interests of the profession at heart, and it will be my constant endeavour to maintain and safeguard those interests.

I consider that a fair settlement has now been arrived at as far as our educational test is concerned, and this without lowering the standard.

There is really no controversial question before the profession at present, but any reforms which may be put forward and which have for their object the promotion of the welfare of the profession as a whole, would have my warm support.

In the near future the financial position of our College, the position of the Army Veterinary Department (which has rendered such splendid service lately in South Africa), and other matters of importance will call for the attention of the Council. I have the honour to be ex-president of the Lancashire Veterinary Medical Association, and at present vice-president of both Yorkshire and Lancashire Associations, and may therefore claim to have kept in close touch with our political professional life, and should you do me the honour to elect me as one of your representatives, I am prepared to devote the time necessary for the work, and every veterinary interest shall have my best and constant attention.—I have the honour to be, yours faithfully,

JOHN MCKINNA.

Huddersfield, May, 1901.

To the Electors of The Royal College of Veterinary Surgeons.

Dear Sirs,

Having been nominated for the forthcoming election of Councilmen of the Royal College of Veterinary Surgeons, and in consequence of not having an opportunity of expressing my views to the electors I consider it my duty to say that should any members of the profession support my candidature I am prepared to endeavour to further the interests of the profession, as a free member, and not as a party candidate.

The most urgent matter now before us is, to my mind, the absolute necessity that all meat inspectors, dairy inspectors, and travelling inspectors of the Board of Agriculture should be veterinary surgeons.

I am all in favour of the general view of the profession for the re-opening of the "Cambridge case."

Although my programme is short I feel certain if it is carried out those elected on it will deserve well of the profession.—I beg to remain, yours faithfully,

J. A. MEREDITH.

Aldershot.

VETERINARY SOCIETIES.

YORKSHIRE VETERINARY MEDICAL SOCIETY.

The spring meeting was held on Friday, April 25th, at the Hotel Metropole, Leeds. Mr. Frank Somers, of Leeds (President), was in the chair, and the attendance of members included Messrs. J. Atcherley, Harrogate; J. Clarkson, Garforth; S. Chambers, Kirkheaton; J.W. Lazenby, Boston Spa; W. F. Greenhalgh, A. McCarmick, (Hon. Sec.) Leeds; H. Pollard, Wakefield; J. E. Scriven, Tadcaster (Hon. Treas.): and S. Wharam, Leeds Mr. G. E. Hamilton, Leeds; and Mr. A. H. Watson, Pudsey, were also present as visitors.

Letters or telegrams of regret at inability to be present were announced from Professor Pritchard, Messrs. J. Abson, G. E. Bowman, H. G. Bowes, A. W. Mason, R. Cockburn, H. Snarry, J. McKinna.

The Council Election.

The President intimated that he had received a letter from Mr. Arthur W. Hill, Secretary of the Royal College of Veterinary Surgeons, recording the nomination of Mr. McKinna by himself and Mr. McCarmick as a Member of the Council at the forthcoming election.

The Secretary also reported that the Lancashire, Eastern, and Midland Counties' Associations had written agreeing to act with Yorkshire, as before, in the election. The midland counties did not intend to run a candidate; Lancashire had nominated Mr. J. H. Carter, of Burnley; and the Eastern Counties had not decided upon their candidate at the date of their letter.

A Message from the King.

The President read the following letter which had been addressed to him :—

Home Office, Whitehall.
April 3rd, 1901.

Sir,—I am commanded by the King to convey to you His Majesty's thanks for the loyal and dutiful address of the Yorkshire Veterinary Medical Society, expressing sympathy on the occasion of the lamented death of Her late Majesty Queen Victoria, and congratulation on His Majesty's accession to the Throne.—I am, sir, your obedient servant,

Charles T. Ritchie.

The President of the Yorkshire Veterinary Medical Society."

A discussion took place as to the permanent preservation of the King's gracious reply, and it was decided that it should pass into the possession of the President, who, it was said, would have it suitably framed.

The Conference on Tuberculosis.

Letters were read from the Hon. Secretary-General (Mr. Malcolm Morris) of the British Congress on Tuberculosis inviting the Society to participate in the forthcoming conference at Queen's Hall, Langham Place, London, on July 22nd, by sending delegates and subscribing. Documents had also been forwarded, viz., (1) objects of the Congress, (2) Programme of the sections and subjects for discussion, with programme for museum and (3) subscription form.

The President remarked upon the importance of the conference, expressing the opinion that the Society ought to be represented.

Mr. Wharam said he noticed from the documents that the veterinary section was a very important one, and would take a most prominent part in the programme. He agreed with the President that the Society ought to send delegates, and he also hoped that as many individual members as possible would attend the conference. It was highly desirable that as a profession they should be well represented. He therefore moved that they should subscribe three guineas, and appoint delegates, who, he took it, would pay their own expenses.

Mr. Clarkson seconded, and the resolution was agreed to.

On the motion of Mr. Greenhalgh, seconded by Mr. Chambers, it was further resolved that the delegates be the President, Mr. Wharam, Mr. McKinna, and Mr. Clarkson, with power to add to their number.

Votes of Condolence.

Mr. Clarkson mentioned that since their last meeting they had lost two members of the profession. One was Dr. Fleming, of North Devon, an Hon. Associate of the Society, who had done a great amount of work for the advancement of the profession, not only by his example but also by his writing; and the other was Mr. Briggs, of Halifax, an ex-president of the Society. The resignation of Mr. Briggs, owing to ill-health, was read at their last meeting. He moved that letters of condolence be sent to the families of Dr. Fleming and Mr. Briggs.

Mr. Lazenby seconded.

Mr. Greenhalgh, in supporting, said the news of the death of Mr. Briggs came as a great shock to him. In his private capacity, he had already written a letter of sympathy to Mrs. Briggs and family in their bereavement.

The President said that Mr. Briggs had been a worthy member of the Yorkshire Society, while Dr. Fleming was one of the most brilliant and ablest men in the veterinary profession.

The resolution was carried in silence.

New Members.

Mr. Scriven proposed the election as members of the Society, of Mr. Henry Walpole, of Green Hammerton; and Mr. Gillespie, of Doncaster.

The resolution was seconded by Mr. McCarmick and adopted.

The Late Principal Williams.

The next item on the agenda was the following resolution in the name of Mr. Scriven: "That a sum of money be granted towards the late Principal Williams' Memorial Fund." Earlier in the proceedings Mr. McCarmick had read a leter from Professor W. O. Williams conveying the sincerest thanks of the family to the Society for their kind sympathy to them in the death of their Father. Professor Williams wrote: "It is a great consolation to us to know how highly our dear father was esteemed by your members, and helps to alleviate our sorrow."

Mr. Scriven, in submitting the resolution, commented on the great value of the services of the late Principal to the veterinary profession, and observed that there were very few at the present meeting who had not been his pupils.

Mr. Clarkson seconded. He said that the question of the amount to be given had been discussed in committee, but it had been thought advisable to defer making any recommendation to the members until it was seen what kindred societies were going to do, and what they could afford out of their funds. Besides the grant from the Socity, members would desire to subscribe in their individual capacity.

The President said the memorial would represent veterinary surgeons in nearly all parts of the globe—from Canada up to the County of York.

Mr. McCarmick said the Secretary to the Memorial Fund (Mr. Horsburgh) asked that, if possible, they should let him know the amount of their subscription before

May 1st. He (Mr. McCarmick) hoped they would comply with the request.

After some discussion, in which the President, Mr. Chambers, and Mr. Greenhalgh took part, the resolution was adopted.

It was afterwards resolved on the motion of Mr. McCarmick, and seconded by Mr. Greenhalgh, that the amount of the subscription and donation to the fund be ten guineas.

A subscription list circulated among the members was filled up by members, over £20 being given. Some of the members had, or had promised, to subscribe direct.

DISEASES OF FOALS.

By S. WHARAM, M.R.C.V.S.

Mr. President and Gentlemen,—At this time of the year we are often called in to attend foals only a few days old suffering from disease. It is not my intention to consider conditions the result of causes, such as a bad mother, either vicious or without milk, exposure to cold, general neglect and malformations etc., as in such cases the owner readily understands the cause and the foal is not expected to live; but in many instances where the mare is under the best possible conditions, a valuable animal, and the foal by a first class horse, disease manifests itself, and the majority of owners are anxious to rear the foal, especially when for some days or weeks the little patient has seemed all right. The most common diseases amenable to treatment are scrofulous ostitis, pervious urachus, and with complications diarrhœa, enteritis, constipation, rheumatic arthritis, influenza and inflammatory affections of special tissues. I have seen several cases of tetanus but they all terminated fatally.

My remarks are necessarily rambling, as apart from their hurried preparation and superficial character I am trying to touch on a number of diseases in a short space, each requiring considerable attention, but what is uppermost in my mind is the creation of a discussion, and I shall be amply repaid for any trouble I have taken if the majority of you say a few words and make up for the conspicuous shortcomings of these notes.

The causes include constitutional debility, with a tendency to indolent inflammatory disease (in some cases hereditary) associated with tubercle, errors in diet affecting the milk and general health of the mare, and specific organisms.

With regard to the pathology of some of these diseases, on scrofulous ostitis, Williams says (page 162) "To understand this correctly, it must be remembered that the growth of the bones is very rapid in young animals and that a large quantity of blood is required in the part in order to supply the nutritive plasma for such growth, in fact the bones, more particularly their extremities, are in a state of healthy congestion. The blood supply must be abundant in quantity and healthy in quality, but in this disease the latter condition is absent; and instead of supplying healthy material for the growth and nourishment of the bones, it conveys a degraded form of albuminoid matter, which is deposited in the structure of the bones and there excites a form of strumous inflammation leading on to caries, the removal of articular cartilage and the formation of abscesses in and around the joints which make their way through the ligaments and synovial membrane and burst externally by many openings, which communicate with the joint by circuitous sinuses. At the same time tubercular matter is deposited in the cancelli of the bone, which is also found abnormally vascular and much softened. The urachus is also filled with a deposit of this tubercular matter, which, by preventing the process of adhesion naturally taking place between its walls, allows the escape of urine at the umbilical region.

In cases such as you may imagine from the above treatment is useless for where you get removal of the articular cartilage and caries permanent lameness would result if the animal lived. But are some of these conditions, cases of tuberculosis, caused by the bacillus tuberculosis? There is a close relation between scrofulous and tuberculous lesions, in some instances you have an enlarged joint with considerable infiltration and accumulation of inflammatory products causing lameness, which slowly but gradually becomes absorbed, but each case varies considerably and different parts are affected, but in every affected tissue I have examined the inflammation has been of that nature which leads to retrogressive changes such as we associate with tubercle.

I have known several instances on particular farms where they were unable to raise either foals or calves, but if removed to another farm, immediately after or before foaling, the foal lived and was reared without difficulty, and although constitutional debility plays an important part, the presence of specific organisms constituting an infected area is, I believe, the most important factor in producing this disease.

Perhaps more important to us as practitioners is what treatment to adopt in these cases. As a preventive I should suggest that the foaling boxes be thoroughly cleansed and disinfected, and not communicating with mistals or folds occupied by horned cattle, allowing plenty of light and fresh air. The condition of the mother in all cases requires attention, she should be liberally fed and not have too much work, and care should be taken to keep her in general good health. In scrofulous and all debilitating diseases "Fellow's syrup," "Mellin's food," and like preparations are exceedingly useful mixed with the mare's milk or given with diluted cows' milk previously boiled. The patient should be frequently assisted to suckle during the night as well as day.

In pervious urachus an operation is sometimes required, this consists of placing a ligature, suture or clam round the umbilical cord, but in all cases I delay the operation and try painting the cord with tinct. ferri perchlor. fort, and dusting it with pulv. boracic acid or iodoform several times a day, with very favourable results. The too early suturing of the cord appears to cause pain and considerable swelling around the umbilicus, and seems to precipitate the swelling of joints and general weakness of the patient, this is no doubt due to the absorption of infective matter, and in the majority of instances something has been tied on the cord by the attendant, and if not causing any inconvenience it is not advisable to remove it.

In diarrhœa a dose of castor oil (2 or 3 ounces) followed by small doses of dried extract of malt in the mare's milk two or three times a day is very beneficial; in diarrhœa when the mare and foal are out at grass I have found the malt extract excellent. Constipation, causing considerable straining, is relieved by injections of oil and water, in the more obstinate cases castor oil should be administered. A change in the mare's diet, allowing plenty of green food is frequently followed by good results.

Rheumatic arthritis. There is some difficulty in the diagnosis of this affection, but it is usually ascribed by the attendant to the mare treading on the foal, although its nature is often revealed by its metastatic action. Salycilate of soda, lime water, and local application of stimulating liniments and warmth with dry bedding and not too much exercise, often effect a cure.

Influenza contracted from the mother or other animals by infection does not require much treatment. If the mother is healthy and remains so, the foal soon recovers, but if the mother is seriously affected, thereby arresting the proper secretion of milk, the foal requires additional support, and a febrifuge two or three times a day in milk or prepared food.

Colds, pneumonia, bronchitis, enteritis, etc. all require the ordinary treatment that the case suggests. In such young patients as I am dealing with rapid inflammatory actions soon cause exhaustion and death, and in many cases there is no time for treatment to be of any avail. But even in such cases if taken at the onset and treated by the application of warm fomentations and subcutaneous injections or anodyne medicine in small quantities if there are signs of violent pain, many valuable lives can be saved and some satisfaction will be obtained for the trouble and expense.

Discussion.

The President remarked that the paper was a most excellent one and full of practical knowledge.

Mr. Chambers agreed with this view, adding that the paper suggested that Mr. Wharam must have had considerable professional experience among foals. His own experience had not been so large. He had applied a ligature and dressing in the way described by Mr. Wharam, as well as given restoratives, but his patients had been very unsatisfactory. One or two cases, however, had done fairly well. From what Mr. Wharam had said and his own experience he thought he should practice the non-ligaturing method more. It was his opinion that ligaturing confined something which wanted an exit, and was liable to be re-absorbed. Last summer he had the case of a cart colt. He applied a ligature, and followed that up with antiseptic dressings externally. He expected a burst above the ligature, as in previous cases, but it did not. That colt grew into a very fine animal. He thought in the matter under discussion it was largely a question of degree of the disease and the resisting power of the animal.

Mr. Clarkson described the subject of the paper as one of great interest to country practitioners. The disease which had been spoken of was more common than it used to be—at least that was his experience. He thought that the diseases of pervious urachus and scrofulous ostitis could hardly be separated. If they had the first there was every likelihood of its being followed by the second. His invariable practice was to ligature immediately. With regard to diarrhœa he believed that the antiseptic treatment was the best. One of the commonest diseases in foals with which he met was obstruction of the bowels due to the animals picking up what to them were really foreign substances.

Mr. Pollard said that both for diarrhœa and constipation he generally treated the mare, instead of the foal.

Mr. Clarkson explained that at the same time the foal was under treatment he dieted the mare.

Mr. Greenhalgh said that as a town practitioner he did not come so closely into touch with diseases of foals as a country practitioner. He had, however, enjoyed the interesting paper which Mr. Wharam had contributed.

Mr. Scriven mentioned that within the last fortnight he and his partner had had a lot of cases of pervious urachus. It was his custom to apply a ligature and caustic, and to treat the animals with certain special foods, and to keep them warm. The foals required a lot of watching, otherwise they would get cold. Out of seven animals they had lost two.

Mr. McCarmick said that he was like other members who had spoken, in that being a town practitioner he did not have much to do with diseases of foals, but none the less he had listened with pleasure to what had really been a most interesting paper, for which he personally desired to thank Mr. Wharam.

Mr. Hamilton observed that since he came to Leeds he had not had much to do with foals, but when practising further north he sometimes used to meet with hernia, and he always used the clams.

Mr. Wharam then replied to the discussion. Dealing with the remarks of Mr. Chambers and Mr. Clarkson, he said that if they wished to be successful it was necessary to put the ligature on early. If they were called in to a foal that had been bad for some time and a ligature had not been applied, to apply it then, in the majority of cases, would do harm. With regard to the various foods which had been mentioned, they were much the same and seemed to suit foals as well as children for whom they were specially prepared. He regarded antiseptic treatment of diarrhœa as most beneficial. He had found Malt extract to answer very well. Foals liked it, and would take it either in their mother's or cow's milk. The extract checked the diarrhœa, and was, besides, a food. With reference to scrofulous ostititis and pervious urachus be had noticed, like Mr. Clarkson had, that where they got one disease they got the other.

Mr. Clarkson then proposed a hearty vote of thanks to Mr. Wharam for his paper, and this having been seconded by Mr. Pollard, and supported by the President, was carried by acclamation.

Mr. Wharam returned thanks, and the meeting terminated.

WESTERN COUNTIES' VETERINARY MEDICAL ASSOCIATION.

The eighteenth annual general meeting was held at the New London Hotel, Exeter, on Thursday, March 28th. The President (Mr. P. G. Bond, Plymouth) occupied the chair, and there were also present Messrs. W. Penhale, A. L. Hutton, Barnstaple; Wm. Ascott, Bideford; E. W. Bovett, Bridgwater; R. E. L. Penhale, Torrington; E. J. Thorburn, Okehampton; Wm. Brown, Wiveliscombe; C. Hedworth Golledge, Sherborne; W. Penhale, Holsworthy; A. J. Down, Tiverton; W. H. Bloye, Plymouth; J. A. Collings, Exeter; Learing, Essex; and J. Dunstan, St. Mellion, Hon. Sec.

The Williams' Memorial.

The Hon. Sec. read letters relative to the proposal to raise funds for providing a suitable memorial to the late Principal Williams. The idea was that the memorial should take the form of a Fellowship or Scholarship, in addition to a portrait or bust. Much would depend on the funds subscribed in response to the general appeal.

Mr. Penhale (Barnstaple) said that although members of the profession in the Western Counties had not been so closely in touch with the late Professor Williams as had been the men of the Midlands and the North, they were indebted to him for the text books which he wrote, and which were in use in the Colleges to-day. He did a good deal for veterinary science, and his knowledge of animals was unsurpassed.

After discussion it was decided that the Association should subscribe towards the funds, the amount to be left to the discretion of the President and Secretary.

British Congress on Tuberculosis.

It was decided that the President-Elect and the Retiring President should represent the Association at the British Congress on Tuberculosis to be held in London at the end of July. It was mentioned that Mr. Bloye, Mr. Penhale, and Mr. Dunstan would be attending as representatives of the Western branch of the Society for the Prevention of Consumption, and it was thought advisable that the veterinary association should be separately represented.

The President said each one would pay his own expenses, they must not forget that he was the treasurer. (Laughter.)

The Balance Sheet.

The Hon. Treas. announced that there was a balance

in hand of £17 odd, but the year's subscription, which would amount to about £20, had to come in.

The SECRETARY added that there was also a large amount due in respect to arrears.

VICTORIA BENEVOLENT FUND.

On the motion of Mr. Bloye, seconded by Mr. Penhale (Torrington) it was decided to subscribe £5 to Victoria Benevolent Fund.

ELECTION OF OFFICERS.

Mr. BOND proposed that the President of the Association for the ensuing year be Mr. Rd. Penhale, of Torrington, one of their oldest members, and one who took a great interest in the Society's welfare. (App.)

Mr. BLOYE, in seconding, said the name of Penhale stood well on their books, and the gentleman now proposed would do credit to his name and to the Society.

The motion was carried unanimously, and Mr. Penhale briefly acknowledged the compliment.

Vice-Presidents.—Messrs. Bond, Golledge, Ascott, and Down were unanimously elected.

Hon. Treasurer.—Mr. Bond was re-elected.

Hon. Sec.—Mr. Penhale (Barnstaple) proposed the re-election of Mr. John Dunstan. They had great hopes of Mr. Dunstan when they first elected him, and he had fulfilled their expectations. He was an ideal Secretary.

Mr. DOWN seconded the motion, which was carried unanimously.

ABSENTEES.

The following wrote regretting their inability to attend:—Professors Dewar, Edinburgh; Hobday, London; Messrs. James, Honiton; Elder, Taunton; Olver, Truro; Parsons, Launceston; and Davie, Crediton.

THE NEXT PLACE OF MEETING.

On the motion of the Retiring President, seconded by Mr. Down, Taunton was selected as the next place of meeting.

BACTERIOLOGY AND ITS IMPORTANCE TO THE VETERINARY PROFESSION.

By JOHN DUNSTAN, F.R.C.V.S., St. Mellion.

(Illustrated by Lime Light Views.)

Mr. Chairman and Gentlemen,—I feel that in a way I owe you an apology for my appearance here to-day. By way of explanation I may say that I find a constantly increasing difficulty in persuading our members to bring forward subjects for discussion. It should not be a difficult task to get papers from a society such as this, consisting of over forty members, and including in its ranks many of the most eminent and best known members of the profession, men who have spent their best years in the pursuit of their calling, and who from the position they have so rightly attained are now entitled to rank as authorities.

A little experience of any subject is worth a large amount of theory, consequently it would be an inestimable benefit as well as a great mutual pleasure to us all as members of the Western Counties V.M.A. to sit and listen to the record of the facts of experience of our veteran members. My experience as Hon. Sec. of this Association is, with few exceptions, that it is the last new members to whom one must apply for an essay with any hope of obtaining it. Now, if each member were to lend a hand and contribute at least one paper we should immediately have a stock in hand sufficient to last us for more than 13 years. I am hoping, gentlemen, that you will take this to heart, and that at the close of the meeting there will be such a rush of offers of papers that we shall have to cast lots to decide on the order in which they shall be accepted.

The subject on which I propose to address you to-day is one of ever increasing importance to the veterinary world, viz., bacteriology, and I may as well tell you at once that I am not going to say anything *original*, and of course I need hardly say that I propose to deal with the subject only in a very superficial manner, drawing your attention to some of the most salient points connected with the vast strides made by the science within the past few years, so that from them we may go on to draw inferences as to what we may expect in the future, and perhaps feel a greater desire to know a little more than we do of what is known of the science to-day.

The first evidence we have of the existence of bacteria is contained in a book written by Athanasius Kircher and published as long ago as 1671, 230 years ago, in which he gives it as his opinion that there were definite micro-organisms to which different diseases were attributable. Kircher had even at that time lenses which magnified 1,000 times.

Some four years later a Dutchman, Antony von Leeuwenhock, noticed in putrid fluids and other media what he described as minute specs of living protoplasm, and in 1683 he made drawings of minute organisms obtained from material collected from the teeth. In 1692 he wrote the first accurate description of several forms ot bacteria, vibrios, bacilli and spirilla.

Nicholas Audry, a noted theoretical physician of the time, was one of the first to consider these organisms, which he classed as worms, as the cause of disease.

It was an Austrian, Marcus Plenciz, in 1762, who first insisted on the specific character of the infective agent in *every* case of disease, and yet until comparatively recent times it was believed that all organisms developed spontaneously.

Linnaeus was the first to classify bacteria and he classified them as "chaos." Very little progress was made until 1786 when Müller, of Copenhagen, commenced to study the biology of micro-organisms and based a classification on the result of his studies.

The controversy now arose as to whether micro-organisms were spontaneous in origin or whether they were the offspring of pre-existing organisms. A series of practical experiments conducted by Spalanzini with the object of solving the question led to very practical and unexpected results. He proved that if a flask containing fluids rich in bacteria were boiled and sealed during the process of boiling, not only would the bacteria be destroyed but so long as the flask remained sealed no bacteria were to be found, and no putrefaction took place. Taking practical advantage of this discovery a Frenchman named Appert introduced the system of tinned meats, fruits, vegetables etc.

The controversy in connection with the spontaneity question lasted until 1854 when it was finally settled by Schroder and Von Dusch, but as late as 1872 a work was published by Charltos Bation to prove that spontaneous generation did actually take place. He found that some fluids after being boiled for ten minutes and hermetically sealed during the boiling contained bacteria after a time. This gave rise to further research and it was found that there were minute bodies—the spores—which were tremendously resistant to germicidal agents, but it was found that even these could be destroyed by repeated boilings.

In 1837 the yeast plant was discovered, and during the same and the following years separate investigators found micro-organisms in Cholera and Silkworm disease, and soon after fungus threads and spores were found in Favus, Herpes, and Pityriasis. In 1850 bacteria were found by different observers in the blood of sheep and cattle dead of splenic fever.

In 1857 Louis Pasteur, to whom the whole world owes a debt of gratitude for his researches, announced that the lactic, acetic, and butyric fermentations were produced by micro-organisms; he followed this up by a care-

ful study of the silkworm disease, and had the satisfaction of discovering a remedy.

In 1872 Bollinger discovered the anthrax spore, and in 1877 Robert Koch wrote the full life history of the anthrax bacillus and gave definite proofs of its pathogenic properties. By means of the warm stage he studied the whole life cycle from the fission of the rods to the formation of spores and the sprouting of spores into fresh rods. To Koch, moreover, is chiefly due the honour of placing the doctrine of the living contagia on a truly scientific basis. He it was who really settled the question of pathogenesis of bacteria.

It is a comparatively easy matter for anyone to examine with a microscope portions of the tissues of diseased animals and to find micro-organisms present. The difficulty is to prove beyond doubt that a particular micro-organism and no other is the cause of one definite disease only. Koch insisted on the following postulates, nothing short of which is satisfactory.

The micro-organism must be found in the blood, lymph, or diseased tissue of man or animal suffering from or dead of the disease.

The micro-organisms must be isolated from the blood, lymph, or tissues, and cultivated in suitable media, *i.e.*, outside the animal body. These pure cultivations must be carried on through successive generations of the organism.

A pure cultivation thus obtained must, when introduced into the body of a healthy animal, produce the disease in question. In the inoculated animal the same micro-organisms must again be found.

Classification of micro-organisms according to form. Bacteria is the name now given to all micro-organisms irrespective of shape, although the term is derived from a Greek word signifying a little rod. When bacteria are round or oval in shape they are known as cocci, or micrococci; when two of these round or oval cells remain joined together it is known as a diplococcus. If several remain linked together like a string of beads we get a streptococcus. When a coccus divides into eight the result is a sarcinacoccus. When the cocci are arranged in irregular masses the groups are known as staphylococci.

Now for the rod-shaped forms: The name given to all straight rods is bacillus. When the rod is slightly bent it is a vibrio, when it is spirally coiled it is a spirillum, then there are the filamentous forms, straight or leptothrix, wavy or spirochaetæ, looped and entwined spirulina.

Structure and Composition.—If we look upon each bacterium as a single cell we find the structure to be a cell wall, or investing membrane, cell contents or protoplasm, and perhaps a nucleus.

The composition of the different species varies, but I think that each specific organism has its own definite composition, for instance, the active chemical principle of the Anthrax or Black-quarter bacillus must be more or less definite, although its virulence may be increased or attenuated, for when introduced into the animal system they always produce the same pathological conditions.

Movement.—Some bacteria are non-motile or motionless, others are motile, *i.e.*, they possess the power of propelling themselves. The character of the movement varies from a slow wavy motion to one of extreme rapidity. Motility is dependent on the possession of delicate hair-like flagella or cilia.

Reproduction.—Bacteria are reproduced by fission or by sporulation. By the first of these methods each organism merely becomes elongated and then divides across. In the case of sporulation a small speck (or specks) appears in the organism and grows at the expense of the protoplasm of the cell, which in time disappears altogether, and the spore is set free. The spore is often wider but never longer than the parent cell.

Respiration and Nutrition.—Bacteria require for their nutrition oxygen, nitrogen, carbon, water, and certain mineral salts. Many require free access to oxygen, others derive it from the oxydised compounds in which they grow, and according as they require free oxygen or not they were classed by Pasteur as *ærobic* and *anærobic*. A bacterium which lives in natural circumstances on dead organic matter is known as a *saprophyte*. Those which live in the tissues of living animals causing disease are known as *parasitic* or *pathogenic*.

The bacillus of malignant œdema is to be found in enormous numbers in the intestinal canal of herbivorous animals, and that of tetanus is an almost constant inhabitant of cultivated soil, but when these organisms propagate in the tissues of the body they are the causes of very fatal diseases. Such parasites are known as *facultative*.

Those bacteria which in natural circumstances do not propagate elsewhere than in the living animal body are termed *obligatory*. Examples of such are the bacilli of Tuberculosis and Glanders.

Cultivation.—Bacteria if sown on a suitable soil and kept at a suitable temperature, may be grown just as one would grow a crop of wheat. Many different media are used as suitable soils for the various species, and many kinds of bacteria can be recognised with the naked eye by their very characteristic mode of growth.

Products of Bacteria.—Bacteria as a result of their metabolic processes produce many different substances. Some manufacture *pigments*, the colours varying with the species. Others produce *light* (photographs of phosphorescent bacteria from sea water can be obtained from their cultures by their own light).

Fermentation is produced by bacteria. The acetic, lactic, butyric, and viscous fermentations are the result of bacterial activity. Putrefactive bacteria produce changes allied to fermentation in complex organic substances. This class is of peculiar interest to us because some of the products of their activity are those poisonous alkaloids or ptomaines

The first we hear of a ptomaine was in 1822 when Gaspord and Stick discovered a very poisonous principle in extract of meat. In 1856 Panum found a similar principle in putrid fish; and in 1863 other observers discovered a ptomaine in putrid beer; but it was Gautier and Seluir who, not many years ago, established the fact that ptomaines were developed as the result of the decomposition of albuminoid material. Ptomaines are of great medical importance by reason of the frequent cases of poisoning produced by the eating of tinned and other meats, fish, vegetables, etc., which are undergoing decomposition or putrefaction. Another class of organisms which is of the greatest economic importance is that group known as the *nitryfying* bacteria, they provide plant life with a most necessary food. But the organisms with which we are chiefly concerned are the *pathogenic* or disease-producing organisms, they give rise to virulent poisons or toxins; many bacteria have with certainty been proved to be the sole cause of certain definite disease, for instance we could no more have a case of anthrax or of tuberculosis except as the result of the infection by the specific bacilli than we could grow a field of cabbages without first sowing the seed. The microbes of Cholera, Typhoid, Tetanus, Diphtheria, Glanders, Bubonic Plague, Pneumonia, Erysipelas and Septicæmia among others have also been isolated and carefully studied within recent years.

A remarkable fact in connection with the invasion of an animal by the bacilli of diphtheria is that they do not become disseminated throughout the system, but remain localised at the point of infection where they propagate and manufacture a toxin which is rapidly distributed through the body.

Antitoxins.—An antitoxin is a product developed in the body as the result of the implantation of a toxin and

acting as a neutraliser of that toxin. As examples we may qnote the anti-diphtheritic serum which has proved to be a great success in the treatment of diphtheria. Tetanin, which is an effectual preventative of tetanus, although unfortunately the hopes aroused with regard to its curative properties have not been realised, at least as far as the lower animals are concerned. Then there is an anti-streptococcic serum which has been proved to be very useful in septic cases, notably those of puerperal fever and erysipelas. Other well-known bacterial products which are not cultivated in the live animal are mallein and tuberculin.

Immunity.—By this term we signify that condition of being insusceptible to an infective disease—proof against infection from any particular germ. The condition may be natural, for instance the ox is immune to glanders, the horse to contagious pleuro-pneumonia, cats, white mice, and Algerian sheep to anthrax. Or it may be acquired—for instance one attack of measles or small-pox as a rule affords lifelong protection.

In many diseases an artificial immunity can be produced by experimentally infecting an animal with an attenuated virus thus giving the animal it is desired to protect a mild attack of the disease.

There are a great many theories extant to account for the mechanism of immunity, but they are so widely divergent that it is difficult to say which, if either, is right. The whole question of immunity, antitoxins, toxins, serums, ptomaines, and the chemical products of bacteria generally is only as yet in its infancy. Now if we realise that all these discoveries have been made within the last few years, and that the whole science of bacteriology was only a short time ago a closed book, we can appreciate the vastness of the strides already made, and look forward with greater hopes into the future. The whole field of bacteriology to my mind may be compared to a great unexplored land, you effect a landing and get to the top of the first range of hills, and on peering into the distance you see farther hills stretching away as far as the eye can reach, and by-and-bye if you reach the top of the most distant one, you see still more and more hills, some perhaps so far distant that only just the faintest outline can be made out. And so it is with science, every little obstacle you surmount enables you to see farther and farther into the possibilities of the future.

I believe we may reasonably look forward to a great future for the serum treatment of diseases, there appears to be something so rational in the very idea of serum-therapy. It is to bacteriology we have to look for any great discovery in connection with diseases.

I propose now to deal with a few of the specific bacteria, passing a few remarks on each, touching upon the points of greatest importance, and at the same time showing you photographs of the actual bacteria on the sheet.

I may say that I am indebted to Professor M'Fadyean for the loan of the lantern slides.

Anthrax.—There is as a rule very little difficulty in demonstrating the presence of the Anthrax bacillus if a small drop of blood be taken from the animal soon after death. If the animal is only just dead, the blood may be taken from any part, but if some hours have elapsed it is better to take it from one of the small veins of the ear or the foot. The reason for this is that in some cases putrefaction takes place very rapidly, and putrefactive bacteria multiply enormously in the great abdominal organs and spread by way of the blood stream, and as a matter of course the small veins of the extremities are the last to be invaded. Some of these putrefactive bacteria closely resemble those of anthrax, therefore it is wise to pay attention to this detail. A small droplet of blood should be placed on a cover-glass and examined with a 1-6th inch objective, the bacilli will generally be found present in large numbers, they vary in size from 5 to 20 micro-millimetres long by from 1—1·25 broad (a micro-millimetre or a micron is the 1,000,000th part of a metre, and in order to the more readily compare the dimensions of the bacilli I may remind you that the diameter of a red blood corpuscle is from six to seven microns). The anthrax bacilli are non-motile, they are generally straight, but sometimes slightly curved, but always rigid. The rods are very easily stained by a watery solution of any of the aniline dyes, and are then seen to be composed of segments with their extremities truncated at right angles ; between the segments a clear linear space exists which gives them a characteristic appearance.

The Bacillus of Malignant Œdema or the septic vibrio as it is sometimes called, varies in length from 3 to 5 microns and in breadth from 1 to 1·1 microns ; they mostly lie in pairs and then appear to be double this length, they even have a tendency to form threads. This organism is interesting to us chiefly because under the microscope it may be mistaken for the anthrax bacillus, but it may be distinguished by being thinner, having rounded ends, and being motile, and the segments of which the rods are composed being longer than in the case of anthrax. These differences look a deal greater on paper than they do under the microscope, and it is necessary to exercise great care to avoid making an error. This bacillus is a constant inhabitant of the alimentary canal of the herbivora, and after death it invades the blood and tissues, penetrating outwards from the intestines. This is especially the case when the blood is in a deoxydised condition such as that found in an animal dead of anthrax.

Black-Quarter.—The bacillus is found in the emphysematous swelling which is characteristic of the disease, the emphysema being produced by a gas liberated by the bacilli in the tissues. It varies in length from three to five microns, and in breadth from ·5 to ·6 microns, the ends are rounded, and the bacilli are motile. Sporulation is present, the spores are oval and often wider than the bacilli, they are generally situated near to the ends of the rods. The bacillus is distinguished from that of anthrax by being smaller by not being found in the blood, and by being motile, it being furnished with numerous flagellæ

Filtered cultures of this bacillus have been used for the purpose of producing immunity, and have to some extent been successful, but the results up to now cannot be said to be of any practical value.

Tuberculosis.—This is perhaps one of the most, if not *the* most, important of the bacterial diseases with which we are concerned. The bacillus was discovered by Koch in 1882. They occur as rods two to four and occasionally eight microns in length. They are straight or curved, and very frequently beaded, very thin, and rounded at the ends, and occur singly, in pairs, and in bundles. They are non-motile. The organism is a tissue parasite, the intestines and lymphatic spaces of the tissues are the most favourable grounds for its growth. It probably never propagates by the blood, but it is occasionally carried by the blood stream. When they get into the blood stream they do not for any considerable length of time continue to make the round of the circulation, but are arrested, and set up fresh centres. The tubercle bacillus is strictly obligatory. It never propagates outside the animal body except when man intervenes. The main reason for this strict parasitism is that the bacillus does not find outside the body the temperature necessary for its growth. The tubercle bacillus is much more resistant to germicides than most micro-organisms, and now perhaps a word or two as to the method of preparation of tuberculin.

Tuberculin is the sterilised and filtered product of the tubercle bacillus. It is prepared by cultivating the bacilli in 5 per cent. glycerine bouillon. The culture is made at body temperature and is carried on for three

weeks or longer. The flasks at the end of this time are sterilised by steaming once at 120° C., or by intermittent steaming on three successive days at 100° C. After that the turbid liquid is freed from the dead bacilli by filtration through porcelain, ½ per cent. of carbolic is added to give it keeping properties.

Glanders is a disease which was described more than 400 years ago. It is of the utmost importance to us, because of the great loss it occasions to horse owners and of the very ready manner in which it is spread to man. The cause of the disease is the bacillus mallei discovered by Löeffler and Schütz in 1882. They are rods with rounded ends, shorter and thicker than the tubercle bacillus, occurring singly or in pairs, sometimes in filaments. It is a tissue parasite, being found in extra-vascular positions in the lesions, also in pus and in discharges from the nostrils. It generally spreads by way of the lymphatics, but it is sometimes disseminated by the blood stream.

Mallein, which is a porcelain-filtered and sterilised glycerine extract of the bacillus mallei, is prepared in a similar way to tuberculin. It is used as a diagnostic agent, and we have great reason to hope that it will shortly be proved to be curative also.

Tetanus. The bacilli of tetanus are straight slender rods, nearly as large as those of anthrax, with often a terminal spore which gives them a drumstick appearance. The bacillus is remarkable in that it is one of the facultative parasites, *i.e.* it is only occasionally that it takes on pathogenic properties. It has a very wide distribution, originally it was cultivated from ordinary garden soil, but successful inoculations have since been made with such material as the sweepings of a hay loft and the dust which had accumulated on harness, the grime off a man's hand, dirty surgical instruments. As a rule it is the soil rich in organic matter which is usually richer in the bacilli of tetanus. Another remarkable feature of this organism is that when it takes on pathogenic properties it is only found at the seat of inoculation and its immediate vicinity. It there manufactures a poison which circulates in the system and gives rise to tetanic symptoms. The tetanus bacilli form their poison slowly, and in healthy tissues they are rapidly destroyed by the tissue cells long before they have time to form sufficient poison to produce the nervous symptoms of tetanus.

Tetanin is an antitoxin extremely useful as a preventative of tetanus in horses, and in man is said to be curative when injected under the *dura mater*. Antitoxin for use in the serum treatment of tetanus is obtained from the horse. The tetanus bacillus is cultivated in an atmosphere of hydrogen in flasks specially constructed for the purpose. In about a fortnight the cultures are extremely toxic. The toxin is obtained by filtration through porcelain. Injections may be given daily subcutaneously or intravenously, beginning with 1 c.c. of iodised toxin and gradually increasing the dose until the pure toxin may be injected without danger. When a few days have elapsed after the last injection the blood is drawn by means of a trocar and canula from the jugular vein into a sterilised glass vessel and set aside to coagulate. Next day the serum is drawn off with a pipette and used in the liquid state or dried in a vacuum over sulphuric acid, and subsequently powdered. When required for use the powder is dissolved in cold water.

Diphtheria is specially interesting to the medical world because it is the first disease in which the specific organism known as Loeffler's bacillus has been isolated, in which the anti-toxin treatment was found to be successful. The bacillus is easily obtainable from the throat of anyone suffering from diphtheria, they are straight or slightly curved rods 1·5—6·5 microns in length by ·3—·8 microns in breadth. They occur singly, in pairs, sometimes in chains, and sometimes as short leptothrix forms. The bacillus is non-motile, and spore formation is unknown. According to Klein the disease is communicable by cats. The employment of the diphtheria antitoxin as a therapeutic agent is based on the discovery that the blood serum of immune animals is antagonistic to the development of the toxin, and consequently the blood of an immune animal is capable of neutralising the toxic properties either in a living animal or when added to a culture in a test tube.

Typhoid Fever. The micro-organism is a bacillus 1-3 microns long by ·5—·8 microns broad, and threads. They are very motile, and provided with flagellæ which are from three to five times as long as the bacilli, but whether this bacillus is really peculiar to typhoid is, I believe, still a matter of dispute. In the present state of our knowledge no one is justified in saying that the typhoid fever bacillus is the only cause of typhoid fever (inoculations with an antitoxin from it have certainly proved to be a failure) but it is generally accepted that the disease is conveyed by water and food which have been contaminated with the virus contained in typhoid evacuations.

Asiatic Cholera. The causal organism is the spirillum choleræ Asiaticæ, or comma bacillus, discovered by Koch. It occurs in the form of curved rods, spirilla and threads. They are actively motile and possess flagellæ.

Strangles is another disease caused by a specific organism, a streptococcus closely resembling a necklace.

Bubonic Plague. Although this is a disease with which we are not directly concerned, it is well to remember that rats are very susceptible to the disease and provide a very ready means of spread by shipboard. The organism is a short rod with rounded ends, and is found in the lymphatic glands.

Pneumonia. The specific micro-organism is known as the pneumococcus; it is as its name implies a coccus, but also occurs as a diplococcus, streptococcus and bacillus. It is found in the pneumonic exudate and sputum.

Lastly I will mention a group of organisms known as the pyogenic or pus-producing organisms, they are *Staphylococcus, Pyogenes Aureus, Albus, Citreus*, and the *Streptococcus Pyogenes.* These organisms are credited with giving rise to the formation of pus.

Now I have arrived at the limit of my time. There are many more organisms which I might have dealt with had time permitted, but I think you will agree with me that I have said enough to prove the relation between, and the supreme importance of, the science of bacteriology to the veterinary profession. There is a tremendous field waiting to be explored in the science. For instance take small-pox and rabies; here we have two well known and dreaded diseases, the symptoms of which are produced by a virus, but of which the micro-organism is still undiscovered. Then there are Rinderpest, Swine Fever, Pleuro-pneumonia, Foot-and-Mouth disease, Cow-pox, Sheep-pox, Foot-rot and many other diseases which are in all probability produced by microbes.

In conclusion, bacteriology has already furnished us with the means of prevention, diagnosis, and cure of many diseases, and considering that it is only now in its infancy we may look forward with hopes that in the future we shall by its aid be enabled to proceed on more rational lines to the extermination of many more.

Before resuming his seat, Mr. Dunstan called attention to the movement for the establishment of a bacteriological laboratory in the County of Devon. There were two proposal, one that the laboratory should be at Plymouth, the other that it should be at Exeter. Members of the veterinary profession should do their utmost by using their influence on the members of the County Council and other public bodies, and in other ways to promote the establishment of such a laboratory in the county.

DISCUSSION.

The RETIRING PRESIDENT said they had been treated to an interesting paper on the great subject of the day. In regard to preventive medicine and bacteriology there was a great field for labour in the results of which veterinary surgery was quite as deeply interested as the sister profession.

Mr. BLOYE, in opening the discussion, endorsed the remarks of the essayist as to the difficulty of getting members to contribute papers. Every secretary had had the same trouble which, it was to be feared, would continue. Possibly when their present Secretary had joined the veterans some energetic successor might be equally pertinacious in his requests and equally unsuccessful in the responses. (Laughter). While congratulating the essayist on his excellent paper he (Mr. Bloye) felt, as the opener of the discussion, in an altogether false position. He had no expert knowledge, and no one but an expert could adequately deal with such a paper on such a subject. Hence he did not propose to criticise the paper, but rather to make a few general observations upon its subject matter. The essayist had practically confined himself to authenticated facts which he had admirably tabulated and served up, leaving much of the application of those facts to themselves. He had not over-estimated one whit the possibilities of bacteriology in the picturesque comparison which he had drawn. What bacteriology had done for surgery was already a colossal monument. It had further become the vital essence of pathology. To this relationship the profession must look for the larger proportion of development, particularly in the department of preventive medicine in which more than ever they would in the future be largely employed. Any one wanting more evidence he would refer to the Oat case tried in London a few years ago, where it was proved that a cargo of oats were the cause of an outbreak of anthrax. The case was gone into thoroughly by Professor M'Fadyean, and as a result of his evidence the verdict was given in court. The purely historical matter of the subject, the details of classification, and the still more important technical recognition and classification he did not propose to discuss. The latter, however, were absolutely imperative to the worker. He admitted that in his private endeavours he always consulted some standard work. Points in the paper which immediately arrested attention were those under the headings: Immunity, Products of Bacteria, and Serum Therapy. Of these latter it was not too much to say that they provided one of the important as well as one of the most interesting phases of the subject. Toxins and ptomaines admittedly played a very large *rôle* in the production of many of the diseases which members of the veterinary profession were called upon to treat. The product rather than the bacterium itself was, perhaps, in most instances the immediate cause of disease. While the bacteriologist and chemist —for these two must either be embodied or go hand in hand—worked out the complex problems which arose veterinarians must be fully alive to the application of the discoveries to every-day work. For example, when they knew that the presence of pus at or near its point of entry was practically imperative to the tetanus organism for the development of its toxin they were at once furnished with one weapon for warding off as well as in treating the malady. Of ptomaines they were not, as veterinary surgeons, in the habit of hearing as much as their brethren of the medical profession. Nevertheless it was to these, or to allied poisonous alkaloids that in common with many others they would have to look as the cause of many of their now inexplicable bowel cases. How often did they at a post-mortem feel utterly nonplussed by the appearances presented. At times one might say this animal died of peritonitis—and with perfect truth. But did that assertion always convey complete satisfaction to oneself? He questioned whether he should be strictly correct in classifying the products of vegetable decomposition as ptomaines, but he believed it to be a fact that poisonous alkaloids were thus developed, and at least one ptomaine. The alkaloid muscarin had been obtained from a poisonous mushroom. How many more remained to be discovered? Beyond this, however, it is not difficult to imagine that putrefactive material might readily find its way into animal foods at times and with disastrous results. In the hope that by comparison of experiences he might get some further light on the subject he assisted, a short time ago, at the post-mortem of a man dead of fish poisoning. He confessed to lamentable disappointment. Scarcely a single bowel or stomach lesion was apparent. Immunity was a fascinating problem, in spite of the fact that its mechanism was still quite unexplained. Here again they must look to the chemist. Phagocytosis certainly did not wholly meet the difficulty. Artificial immunity offered them big scope. The practice of conferring immunity by the use of attenuated viruses or by serums obtained from the unweakened organisms doubtless obtained much more largely on the Continent than with us. The principle, however, was adopted to a very considerable extent.

The preventive action of tetanin was well established with us, but although in France preventive inoculations for anthrax and black-quarter were general he doubted whether we should be justified in advocating the practice at home. When it was considered what had been accomplished already in the diseases enumerated in the paper it was surely not too much to hope that the pleuro-pneumonia inoculations might reach an admitedly successful stage; that an alternative virus might be discovered for that canine scourge distemper, and should he add equine distemper.

Mallein and Tuberculin had revolutionised diagnosis, and he, too, confessed to being sanguine that their beneficial, if not curative, effect might yet be established. He did not despair of an anti-serum might yet be found for strangles. Doubtless bye-and-bye some of them would at least attempt the injection of tetanin sub-durally.

In regard to anthrax he was much struck by a very interesting communication by Professor M'Fadyean which concerned them largely when endeavouring to eliminate the cause of an outbreak. If he remembered aright, the communication in question suggested the possible evolution of the anthrax spore—perhaps not a very comforting suggestion. But who should deny to the microbe that which was now so generally allowed to be intimately connected with our own existence. Then, too, in the face of the recent experiments in the Roman Campagna in which mosquitoes were so clearly proved to be the carriers of malaria, we must be alive to the possibility of flies becoming media of [contagion.

As being germane to the subject he might call attention to the new method of diagnosing rabies mentioned by Professor Mettam at the N.V.A. meeting in Dublin. The diagnosis in question, determinable in 24 hours, depended upon the alteration of certain ganglia in the base of the brain. He had hoped that the essayist would have referred to and the admirable series of slides (for the loan of which they were greatly indebted to Professor M'Fadyean), contained specimens of the actinomyces and botrycomyces. The diseases produced by these fungi, particularly actinomycosis and scirrhous cord, were too well known, but with their organisms they were by no means so familiar. Incidentally he might mention that in conversation some time ago Dr. Delépine stated that the presence of botrycomyces was not uncommon in the pus of poll-evil. As bearing on the point he (the speaker) had recently had under treatment a horse suffering from a large mastoido-humeralis tumour, coincidentally with bad poll-evil. This subject which had

been so ably treated by Mr. Dunstan, had already become so vast that nothing short of a life study was commensurate to the attainment of anything like complete knowledge. It was necessary for them to keep *au courant* with the discoveries constantly taking place; but for the recognition of all but the readily recognisable bacteria the busy practitioner must rely on the specialist. There was nothing derogatory in this. The most advanced and the most able human practitioners constantly appealed to specialists. (App.)

Mr. PENHALE (Barnstaple), said the subject was of the highest importance to them, although it was perhaps not easily "discussable." It came as a surprise to hear that bacteria were known 200 or 300 years ago. It was another illustration that there was nothing new under the sun. He should like to have heard a few words more on the great part which Pasteur had played in connection with the subject. They were largely indebted to him. The study of bacteriology must be dated from his time and his discoveries. He drew attention in 1874, before the British Association, to the greatness and importance of the subject. He (the speaker) understood him to say that the bacillus of tetanus did not enter the system so much as that it remained at its seat of entrance and there manufactured the toxin which produced the spasm of the muscles and the symptoms which were so often seen. He had used anti-serum for disease after it had once set in, but he could not say he had proved its efficacy in lessening the symptoms or in saving life. In regard to diphtheria, human surgery had, he believed, found serum highly valuable in cutting short disease and in saving life. It was difficult to understand why the animal system should be proof against one set of bacilli and susceptible to another. There was a great field for research in this direction. He quite agreed with Mr. Bloye as to the part which flies played as a medium of inoculation in several diseases. There was, in South Africa, a fly which was almost the sole means of carrying the disease there. Instances were not rare in this country where flies had produced anthrax in the human subject on separating from carcases which had suffered from the disease.

Mr. BLOYE said the last death at Plymouth was in that way.

Mr. PENHALE (continuing) said allusion had been made to toxins which might be manufactured, somehow or other from vegetable material There was a disease known by different names in different localities. It was called "ting," he believed, in Cornwall and also in the western part of Devon. The cattle swelled around the eyes and around the vagina, the udder, the loose skin of the neck. Effusion took place readily sometimes inside the larynx, and the animal died suddenly. The disease arose and passed away suddenly, and it was prevalent during the first shooting of the grass. It would be interesting to know whether this arose from a toxin.

Mr. GOLLEDGE joined in thanking the essayist for the way in which he had dealt with an important and highly interesting subject. He thought they ought to give a large amount of attention to bacteriology. Referring to the question of "ting" one of his cows twelve months ago had bot flies on her back. He pricked three or four of them. The cow licked the part and commenced to tremble. Half an hour afterwards he was called and told that the cow had swollen all over the udder and down her neck. Whether by the pricking of this bot fly he liberated any toxin or whether it was merely a coincidence he could not say. In regard to milk fever the question of toxin in the udder seemed to be coming into favour. He looked to the younger generation to throw some light on the subject.

Mr. DOWN said in judging from the microscope specimens it would not do to trust too much to their own knowledge, and Mr. Bloye's advice that they should go to the specialist was, perhaps, most safe in general practice. They needed almost a note of warning in regard to the accepting of conclusions which were sometimes adduced by these highly scientific gentlemen. It was right to recognise the researches which were being carried out, but not to accept without hesitation all the results that were supposed to be arrived at. For instance take the matter of rabies in the dog. They were told that *inoculation* prevented hydrophobia. It might be so, but he thought that would be as far as it would be safe for most of them to go. The experiments carried on at the Pasteur Institute were valuable, and no doubt had already had scientific results. But had the issue been hydrophobia?—("Yes.") He did not feel quite so confident. If the cases were looked at carefully it would be found that they were not always of the most reliable kind. He did not expect to speak on this subject, and he could not give them exact data. But he might say that those who had been supposed to have been bitten by rabid dogs had been treated for hydrophobia, and the dog died in old age. This raised a doubt as to the accuracy of the results, as to whether the cures returned by the Institute, which had never been proved absolutely, had been cases which had been bitten by rabid dogs. The percentage of those who died from hydrophobia was very small, even if bitten by rabid dogs. He believed it was as low as five per cent. That did not leave much of a margin to go upon. In regard to the cure for diphtheria he knew that the sanguine statements as to the curative effect had been denied in some quarters. He said this in order that they might hesitate before they accepted all the results claimed by eminent scientists, however much they might value their researches. The essayist had said that tetanin was not recognised as a cure. He (the speaker) had had three cases of horses, two of which recovered, and he was pleased at the result.

Mr. PENHALE (Holsworthy) thought bacteriology was likely to revolutionise the pathology and diagnosis of disease, and that there was a wonderful future before it. He had not much time for microscopic investigation, but he had no doubt that as time went on they would be able to discover the bacilli almost of every disease with which they were acquainted. This winter he had had some peculiar cases of tetanus. He had not examined the blood very much with the microscope. But he had had six cases of tetanus in cattle, three in yearlings after castration, and three in cows. This was an experience he had never had before during a practice of 25 years, and all six cases proved fatal, although he tried the serum. He had examined the blood in cases of anthrax in pigs. In some cases he had been able to discover the bacilli, but not always. In cases in which veterinary surgeons were called in the animals generally had been dead some days. He was sure the paper which they had heard would be an incentive to them to make the microscope and the investigation of bacteria a greater study.

Mr. BOVETT mentioned an isolated case of anthrax of which he had had experience. The stock had been on one field which had never been mown, and the man had had it in his possession 12 or 14 years. Yet there occurred two cases of anthrax in cows. The first animal was found dead. The second case was examined by Professor M'Fadyean who wired back that it was undoubtedly anthrax. There was a cow in the same field whose temperature was 107. He inoculated all the cattle left in the field. The two cows that died and the one that had a tremendous rise in temperature were each suckling calves, and the other cattle had no calves. The cow with the temperature at 107 recovered. He would not say that it was anything to do with the serum. Professor M'Fadyean had said that a good many cases of anthrax would recover, and possibly it might have recovered without the serum. He had sent to Professor M'Fadyean five cases but only in one did he decidedly answer that it was anthrax. In the other cases he said he could not find anthrax bacilli but from their appear-

ance, he said, he should condemn them. In his (the speaker's) opinion it was not right to condemn unless they were sure.

Replying to the discussion, Mr. DUNSTAN said his main object in bringing forward the paper was to try to stimulate an interest in bacteriology. He did not pretend to bring forward anything original. He wished merely to state facts of increasing interest. Mr. Bloye had mentioned the possibility of the evolution theory applying to bacilli. It might be so. But if they accepted it they would bye and-bye be accepting the theory of the transmigration of souls, and getting the two mixed together and perhaps they would find themselves anthrax bacilli in the next generation. (Laughter.) He could not say whether "ting" was the result of a virus. Nor did he know whether it might be owing to shoots of grass. He had had several cases lately, but there were no shoots of grass in his district at this time of the year. Mr. Brown had mentioned the difficulty of diagnosis. He (Mr. Dunstan) thought that every veterinary ought to be able to recognise the anthrax bacillus. But when they had a suspicion that the case was one of anthrax the law was that they should proceed on the same lines as if they were sure. Suspected cases had to be dealt with in exactly the same way. If they took the blood from the extremities soon after death, especially in cold weather, and they found those square cut bacteria present, they might be sure of anthrax, but according to the time elapsed since death the presence of these bacteria might be misleading if hours had elapsed, especially in warm weather, putrefaction would have penetrated through the whole system and the putrefactive organisms might be mistaken for those of anthrax. But even then they could use a simple stain of methylene blue. If then some of the organisms were very deeply stained, whilst others were only very slightly so, although they closely resembled each other in form, yet the probability was that the lighter stained ones were those of anthrax, whilst the more deeply stained ones were putrefactive.

With regard to the question of rabies, Mr. Bloye informed him that M. Pasteur inoculated 1720 cases with only two deaths. Mr. Penhale had mentioned a remarkable outbreak of tetanus amongst cattle. It was very interesting because tetanus is so very rare in cattle; he remembered seing two cases many years ago.

The retiring President proposed, and Mr. J. A. Collings seconded, and Messrs. Penhale and Down supported, a resolution thanking the Essayist and the opener of the discussion, and it was carried unanimously.

The members subsequently took tea together.

JOHN DUNSTAN, *Hon. Sec.*

NORTH OF ENGLAND VETERINARY MEDICAL ASSOCIATION.

The annual meeting and dinner was held at the County Hotel on Friday, February 15th, 1901, the President, G. R. Dudgeon, Esq., in the chair. The following gentlemen were present: Messrs. G. R. Dudgeon, J. Gofton, G. M. Mitchell, G. Craik, J. Davidson, W. Hunter, J. W. T. Moore, A. Chivas, and the Hon. Secretary.

The minutes of the last meeting were taken as read.

Letters were read from Messrs. T. M. Horsburgh and W. F. Barrett.

The following gentlemen were elected members of the Association: Messrs. T. Kilburn, Warkworth; E. R. Gibson, Seaham Harbour; G. E. Gibson, Sedgefield; N. Irvin, North Shields; and W. T. Bolton, Ebchester.

PRESIDENTIAL ADDRESS.

G. R. DUDGEON, M.R.C.V.S.

Gentlemen,—When Mr. Nisbet declined to occupy the chair and Mr. Peele refused on account of his youth and inexperience, you, gentlemen, elected me. Either of the two gentlemen would have fulfilled the office with greater dignity, but I will yield to neither in my desire to promote the interests of our Association.

The Association owes a great debt of gratitude to Mr. Nisbet, and to my mind it has not repaid it. At the time when the profession was in arms against what was known as the 9th Clause he, at great inconvenience and expense, allowed himself to be nominated for the Council of the Royal College of Veterinary Surgeons by this Association, and was elected by the profession. How faithfully he discharged his duties we well know, and had he allowed himself to be put forward when his time expired I am sure he would have been re-elected.

Gentlemen, it is exactly 37 years ago and one month since the first presidential address was delivered at this Association. The Association since then has had its ups and downs. It was down some years ago, in fact it was nearly dead. It awoke with renewed energy after its rest and did real good. I am afraid at the present time, although not dead, it is moribund, which, to my mind, is almost a worse state. At present the Association seems to be in a state of deathlike, careless inactivity, a partial paralysis which requires a very strong stimulus indeed to arouse it. What is the cause of this? I confess I do not know. Let us look the facts fairly and squarely in the face. Here is an Association which has been in existence for more than 37 years. An Association that in its time has been a power, a strong power. Unfortunately I have not had the time to look up all the resolutions etc. which have been recommended by this Association, and which have been adopted by the Council of the Royal College of Veterinary Surgeons. A goodly lot. I ask, Is it right? Is it just? Is it wise to let such an association as ours lose its power and influence? I say no, a thousand times no. You, gentlemen, can prevent it. You who are not members can get elected to the Association by a very easy process. You who are members can by your influence—you all have some friends in the profession, induce them to join us. Sink petty differences, jealousies, and all uncharitableness. Remember our motto—*Vis unita fortior*—and unity will be strength.

My one desire is to bring together the members of our profession in the North of England. See that all members are made equal and at home. Every member is entitled to his opinion, and every member should express it. Differences of opinion will, must, and should arise if the Association is to prosper. The more discussion the better. The more subjects are ventilated the more likely we are to get at the truth. Only keep out the personal element, forget your personal differences and remember you are met together for the good of the profession, and nothing will prevent the Association prospering. I have dwelt strongly on this part because I feel strongly. It is astonishing when we meet together and have a friendly conversation how soon little and big differences are put to one side. Things which seemed big after a little chat assume small proportions. I say come and let us consult together.

It is usual for the president when delivering his address to review the politics of the profession. At present no burning questions are before us. This may be either good or bad for the profession. It may be we are fully satisfied that the powers that be are doing right; or it may be the profession is lax. A truly progressive body should not be content to stand still. It is not a good sign when everybody apparently is satisfied, To stand

still is to retrograde. Apathy is the forerunner of carelessness. When we begin to get careless it requires something strong to arouse us. There has been a little stir on the old education question lately. I think we will all agree that the better educated a man is the more likely he will succeed in the profession or trade which he adopts. The profession fixed a certain standard of education a few years ago. And that was the same as the medical. The medical have since raised their standard. The question is: Are we to follow the medical profession and demand from our students a preliminary examination equal to theirs? Or, Is the standard we have at present sufficient? I am of opinion—although a strong advocate for education—that at present our matriculation examination is sufficiently high to meet all the requirements demanded of a veterinary surgeon. A difference has arisen on this question. The Scottish schools say the educational examination demanded by their examining board is higher than that of the English examining boards. Without going into the *pros* and *cons* of the matter, I think there should on no account be any difference in the examinations. They should be equal. And if our Council exercise a little reasonable common sense I see no reason why a fair and equitable arrangement should not be arrived at. Mind I am thoroughly in favour of high education for our students. The better they are educated, with more ease will they grasp all the difficult matters pertaining to the profession. At present the remuneration the veterinary surgeon obtains from his clients is not a sufficient recompense for the time and money which has been expended on his education. The higher the education demanded the better should be the fees which our graduates can obtain when in practice. The time is not yet for a university degree, but it will come. The general public, and especially public bodies, will have to pay the veterinary surgeons better for the valuable services which have, and are being rendered to them by us, before we can ask from our students a preliminary examination equal to that of medicine, law, or divinity.

Gentlemen, if I may tread for a moment or so on dangerous ground I would ask: Is it altogether our clients or public bodies faults that we are so badly paid? Do we not sometimes underrate our services? If a member of the profession takes work at a low figure for the sake of getting that work, I would ask: Is he not undervaluing his services? And is he not, by taking small pay for valuable services—for valuable services he must render if he does his duty—be-littling the profession to which he belongs? A little trades-unionism in our profession would do a lot of good; but this is forbidden ground, therefore I will say no more.

No inaugural address would be complete without reference to tuberculosis. As you know, volumes have been written about it, and probably volumes will still be written. The medical profession at present have a lot to say about it, and have a lot of suggestions to make; I cannot enter into the controversy. You all know as much about it as I do. This I will say, and maintain, given the powers, the veterinary profession are fully ready and prepared now to stamp this insidious disease out of our herds. Yes, and they will do it long before the medical profession has made much diminution in the number of cases amongst their patients. We are ready and willing to be put to the test.

A word or so about the Inspection of Meat. Who is so qualified to properly discharge this most important duty—with regard for the health of the public—as the Veterinary Surgeon? Who, by all public bodies is so discarded? Need I say the Veterinary Surgeon. The Medical Officer of Health—probably he may never hardly have seen the carcase of a beast before his appointment to this most important office however, assisted by his staff of plumbers, broken-down butchers, and members of nearly all other trades, is now prepared to give an expert opinion, and what is more surprising, the Magistrate, if the case is before the Bench, will in most cases accept their evidence before that of a veterinary surgeon. Here the medical and veterinary professions should run hand in hand for the good of the public. I am astonished that the powers that be do not see this plain fact, and insist that all carcases of meat should be examined by a Veterinary Surgeon and Medical Officer of Health before being condemned. I believe that even butchers would be satisfied with this arrangement. The Veterinary profession, I am sure, would gladly co-operate with the Medical in this matter. The wise Medical Officer will, I know, be glad of the assistance of the Veterinary. This may come in time.

Before concluding it is my duty to allude to the sad loss the Empire has recently sustained in the loss of our well beloved Queen Victoria. No words that I can use could sufficiently extol her goodness. We mourn her loss. I am sure that none of her subjects more regret her decease than do the Members of the North of England Veterinary Medical Association. King Edward VII reigns. We sympathise with him and the other members of the Royal Family in their great affliction. We respectfully bow in allegiance to our Sovereign The King and pray long may he reign. The Victorian Era is past. The greatest, noblest and best in the history of our Nation has gone by. Gentlemen, I am not a prophet, nevertheless the good which has been accomplished in the 19th Century is but an augury of what is to come, provided the Nation is true to itself. The example of our late Queen will be ever before our Sovereigns, making them strive to do even better than she did. They will do their duty. With us, the people, rests the greatest responsibility. Nations are built up of individuals, so should each individual do his best for the good of his country. Particularly should he do his best for the advancement of the class to which he belongs. The Veterinary profession in the North is not doing its best—in fact it seems to me it is trying how little it can do. This is not right, I appeal to the members of the Profession in the North of England to come and join us. Let us consult together. Sink our differences. Band together for our mutual good and all will be well.

Gentlemen, I thank you for the honour you have conferred upon me in electing me for the second time for your president. I prize it. I will do my very best to promote the good of the Association and the Profession at large. Without your co-operation I am useless. It remains with you and you alone to bring about my desire. We are beginning a new century—The Veterinary profession was not in existence at the commencement of the last. It must go on ever progressing, nothing daunted, seeking the truth.

Mr. G. E. GIBSON thanked the President for his very interesting address, and proposed that a copy of the same should be sent to the veterinary journals. Seconded by Mr. Craik and carried unanimously.

Owing to a sad family bereavement Mr. Hunting, who had promised to read a paper was unable to do so; therefore, with the kind permission of Professor M'Fadyean, the Secretary read a few notes on "How a Post-mortem Examination ought to be made."

This raised some discussion, Messrs. Mitchell, Moore, Gofton, E. R. Gibson, Bolton, and Dudgeon joining in the same.

Mr. HUNTER rose to say that there being glanders in Gateshead he had something to say which might interest the members present. Out of several horses which had reacted to mallein four were kept, and it was intended to inoculate these four once a week for a month in order to effect a cure, as had been done in Glasgow. These horses showed no clinical symptoms of the disease. At the end of a month the horses were to be put back to work as cured—since they had failed to react to mallein.

Mr. GOFTON thanked Mr. Hunter for bringing the sub-

ject forward, but wanted to know if a post-mortem examination would be made on any one of the four horses after they had ceased to react to mallein.

Mr. MOORE advised that they should be killed and that a post-mortem examination be made.

Messrs. H. S. ELPHICK and DAVIDSON asked whether Mr. Hunter was in a position to prove, without a post-mortem examination being made, that the horses were not still glandered although they had ceased to react to mallein. They held that the injecting of mallein once every week produced an immunity to reaction on the part of the horse. Even though there were no clinical symptoms of glanders presented yet the disease might be spread. It had been proved at the first injection that the horses were glandered, and it must now be proved that the same horses were not glandered, were, in fact, cured by mallein.

Mr. CRAIK thanked Mr. Hunter, but had had no experience of mallein. If he might refer to tuberculin his opinion was that this substance was opening the door to fraud. (Mr. Moore: Hear, hear). He asked whether the horses in Glasgow had been kept separate after being cured or whether they had been mixed up with others and if there had been any new outbreak.

Mr. MITCHELL said that with regard to tuberculin it was a fact that if it be frequently injected no reaction would follow though at the first injection the reaction had been a typical one. Why should not mallein have similar results?

Mr. E. R. GIBSON said that when he was practising in London mallein had only just come out as an agent for detecting glanders. His experience had been that horses continued to react if occasionally injected.

Mr. CHIVAS asked how soon after injection the horse would react.

Mr. DUDGEON pointed out that these cases and the use of mallein exposed the badness of the law on this matter. He asked if there were any clinical signs in those which reacted. If not he did not think the local authority could do anything in the matter. His advice was to report all clinical cases and get rid of them.

Mr. HUNTER, in reply, said that nodules taken from the cured glandered horses in Glasgow had failed to produce the disease in an ass and a guinea-pig when these had been inoculated.

Mr. H. S. ELPHICK said that that might easily be so, and yet the nodule be dangerous and capable of spreading the disease. The sure and certain way in which to find out if the nodule was still infective would be to attempt to make a culture or cultures from one or more nodules. He also stated that it was possible for a horse to have glanders and get better, the phagocytes killing the bacilli without the aid of mallein.

Mr. G. E. GIBSON proposed that the next meeting be held in Durham, and this being seconded was carried.

Mr. CRAIK exhibited a specimen of tubercular disease of the prostate glands of the left vesicula seminales of a bull.

A hearty vote of thanks to the President terminated the meeting.

THE ANNUAL DINNER.

The annual dinner was held in the evening, the President again occupying the chair. He was supported by Messrs. E. R. Gibson, G. E. Gibson, Moore, Dudgeon, and others. The loyal toasts being drank, the President called upon Mr. Moore to propose the "Army, Navy, and Auxiliary Forces." He said that these branches of our constitution we were and are all proud of, touching upon our Army, Handy Men, Yeomanry and other Volunteers at present doing such grand work and enduring such hardships—such necessary hardships—in South Africa. He coupled the toast with the names of Major Elphick and Lieut. Craik, who suitably responded.

In the absence of Mr. G. E. Gibson, Mr. E. R. Gibson proposed "The North of England Veterinary Medical Association," to which the President responded.

Mr. JOHN GOFTON proposed "The Royal College of Veterinary Surgeons," to which Messrs. G. Elphick and W. Hunter responded.

During the evening songs were sung by Messrs. E. R. Gibson, Craik, and H. S. Elphick, Mr. Jenkins presiding at the piano.

The health of the Secretary was next drunk, and a hearty vote of thanks to the President, followed by the singing of Auld Lang Syne and God Save the King terminated the proceedings.

H. S. ELPHICK, *Hon. Sec.*

ELECTION ADDRESS.

To the Fellows and Members of The Royal College of Veterinary Surgeons.

Gentlemen,

I beg to offer myself as a candidate for election as a Member of Council.

Upon the subjects which are at the present moment before the profession I should like to offer an opinion. I think the Preliminary Examination is severe enough, and that the standard originally fixed by the Council suffices for all purposes at the present time, but in order to obtain uniformity I am of the opinion that sooner or later we must have a preliminary or entrance examination of our own.

As to the Cambridge case I have no more information than that which is already before the profession. I think, however, that the Council should, in the interest of the profession, re-open the case and take evidence if necessary by a special committee, which shall report to the Council in order that justice may be done. The present condition of the case is satisfactory to no one.

Lastly, I would point out that owing to Mr. Winter's resignation the number of Members of Council resident in Ireland is reduced to two, for this reason and because of my connection with the Royal Veterinary College of Ireland, I ask you to honour me with your votes and interest.—I have the honour to be, gentlemen, your obedient servant,

A. E. METTAM.

Royal Vet. Coll. of Ireland, Dublin.

The Agricultural Association of Lombardy proposes to offer a prize of L100,000 to any Italian or foreigner, who will produce an absolutely reliable means of prophylaxis against Foot-and-Mouth Disease, the duration of immunity to exceed two years. Particulars of the scheme may be obtained from the office of the Society in Milan.—*La Clinica Vét.*

F.E.P.

COMMUNICATIONS, BOOKS, AND PAPERS RECEIVED:—Messrs. Fred. E. Purkis, Robt. Stewart, W. Awde, A. L. Butters, Harold Leeney, E. P. Owen, W. Robb, F. E. Place, E. W. Hoare.

Journal of Comparative Medicine and Veterinary Archives (Philadelphia, April), *The Evening Telegraph.*